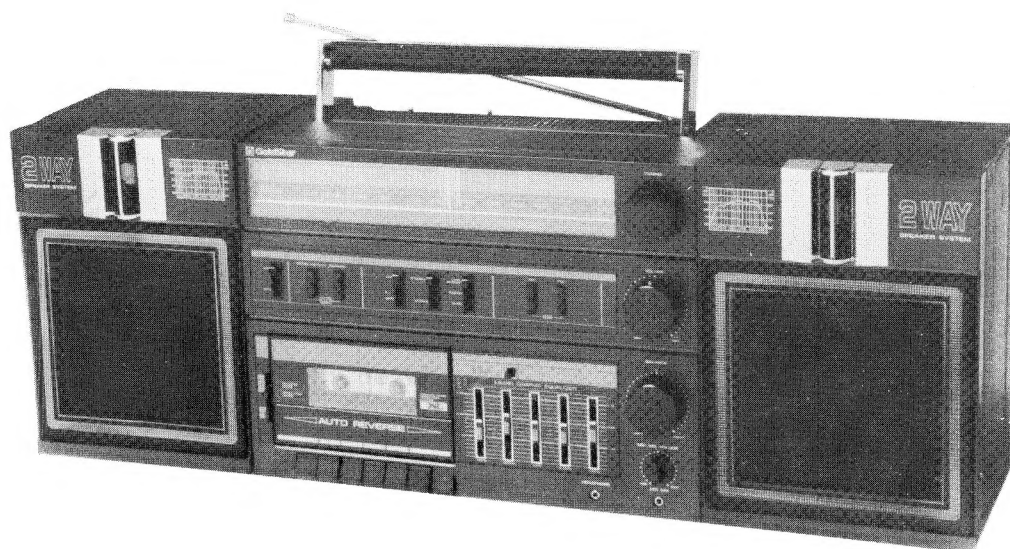




Service Manual

4 BAND STEREO CASSETTE RECORDER


MODEL TSR-940
(MW/LW/SW/FM)



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PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related features, which cannot necessarily be assured by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety features are identified in this manual, by a  in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

SPECIFICATIONS

General Performance Specifications

	Item	Specifications
1.	Feature	<ul style="list-style-type: none"> o Band: FM/MW/LW/SW o DNR (Dynamic Noise Reduction) o 4 track 2 channel stereo, Auto reverse o 5 band graphic equalizer o 6 dot level indicator o Mic mixing o 2 way 4 speaker: Woofer 5'' 4 ohm × 2 <li style="text-align: right;">Tweeter, piezo × 2
2.	Power Supply	<ul style="list-style-type: none"> o DC: "D" cell × 9 (13.5V) o AC: 110/220V, 50/60Hz (option)
3.	Antenna	FM, SW: Rod antenna MW, LW: Ferrite bar antenna (built-in)
4.	Jack	<ul style="list-style-type: none"> o Mic mixing: Ø3.5 o Headphone: Ø3.5 o Ext, Speaker: Ø3.5 × 2 (L, R) o Line/Phono In: RCA pin jack × 2 o Line out: RCA pin jack × 2

MW Performance Specifications

	Item	Test Freq. (kHz)	Unit	Limit	Nominal	Test Condition
1.	Frequency range		kHz	525~1605	515~1650	
2.	Intermediate frequency		kHz		455 or 465	
3.	Usable sensitivity	600	dB	54		
		1000	dB	54		
		1400	dB	54		
4.	S/N ratio	1000	dB	36		74 dB input, 30% mod
5.	I.F. rejection ratio	600, 1400	dB	30		
6.	Image rejection ratio	600, 1400	dB	30		
7.	Selectivity	1000	dB	20		
8.	10% T.H.D. power output	1000, 1400	mW	4/3.5	5/4	DC/AC, input 74dB (50%), 400 Hz
9.	T.H.D.	1000, 1400	%	5		
10.	Audio response	1000	kHz	2.0		1 kHz: 0 dB, - 6 dB point

LW Performance Specifications

	Item	Test Freq. (kHz)	Unit	Limit	Nominal	Test Condition
1.	Frequency range		Hz		140~360	
2.	Usable sensitivity	160	dB	65		
		230	dB	65		
		330	dB	65		
3.	S/N ratio	230	dB	30		Input 74 dB, 30% mod, 400 Hz
4.	I.F. rejection ratio		dB	26		
5.	Image rejection ratio		dB	26		

SW Performance Specifications

	Item	Test Freq. (MHz)	Unit	Limit	Nominal	Test Condition
1.	Frequency range		MHz	6~18	5.7~18.5	
2.	Usable sensitivity	6.5	dB	45		
		11	dB	45		
		16	dB	45		
3.	S/N ratio		dB	40		Input 60dB,30% mod, 400 Hz
4.	Image rejection ratio	16	dB	3		At max sensitivity

FM Performance Specifications

	Item	Test Freq. (MHz)	Unit	Limit	Nominal	Test Condition
1.	Frequency range		MHz	87.5~108	87.35~108.25	
2.	Intermediate frequency		MHz	10.7	10.7	
3.	Usable sensitivity	90	dB	18		
		98	dB	18		
		106	dB	18		
4.	S/N ratio	98	dB	46	50	FM 60 dB input, 22.5 kHz dev. 400 Hz 1 W output
5.	I.F. rejection ratio	90, 98	dB	60		
6.	Image rejection ratio	90,98,106	dB	26	30	
7.	10% T.H.D. power output	98	mW	4/3.5	5/4	DC/AC, FM 60dB input, 40 kHz dev., 400 Hz
8.	T.H.D.	98	%	2		Input 60 dB, 22.5 kHz dev., 400 Hz
9.	Audio response	100Hz	98	dB	0±6	Pre-Amp 50μS, input 60 dB, 22.5 kHz dev., 1 kHz: 0 dB
		10 kHz	98	dB	0±4	
10.	Stereo separation	98	dB	20		100 Hz, 1 kHz, 10 kHz

Tape Performance Specifications

	Item		Test Tape	Unit	Limit	Nominal	Test Condition
1.	Tape speed		MTT-111	cm/sec	± 3		
2.	Winding time	F.F.	C-60	sec	110		C-60 tape
		Rew	C-60	sec	110		
3.	Wow & flutter		MTT-111	%	0.15		JIS-WRMS
4.	Freq. response (Play)	Normal	MTT-216	dB	± 6		1 kHz: 0 dB
		CrO ₂	MTT-316	dB	± 6		
5.	Distortion	Play	MTT-118	%	3		Rec input (1 kHz), Din 1 mV/K
		Rec/Play	Normal	%	5		
6.	Output (10% THD)	Play	MTT-112	mW	4/3.5	5/4	DC/AC, Rec Input (1 kHz), Din 1 mV/K
		Rec/Play	MTT-502	mW	4/3.5	5/4	
7.	Cross talk	Track	MTT-121	dB	40		With 1 kHz BPF
		Channel	MTT-141	dB	30		
8.	Erase ratio		MTT-502	dB	55		With 1 kHz BPF
9.	Azimuth alignment			dB	3		

Note: Nominal specs represent the design specs: all units should be able to approximate these-some will exceed and some may drop slightly below these specs. Limit specs represent the absolute worst condition which still might be considered acceptable: in no case should a unit perform to less than within any limit spec.

DIAL CORD STRINGING

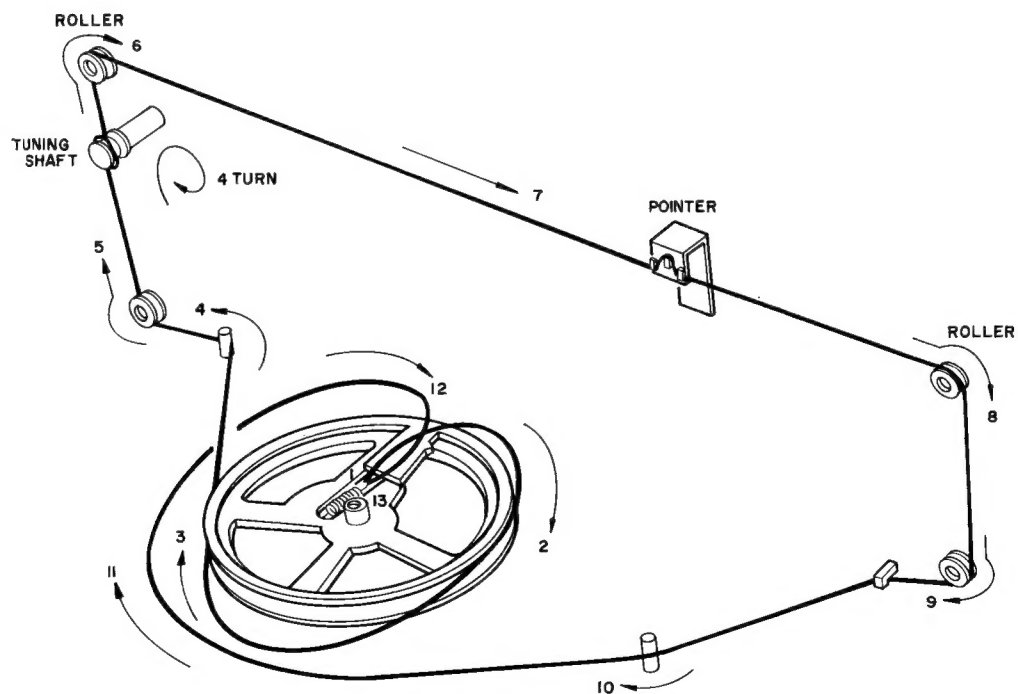
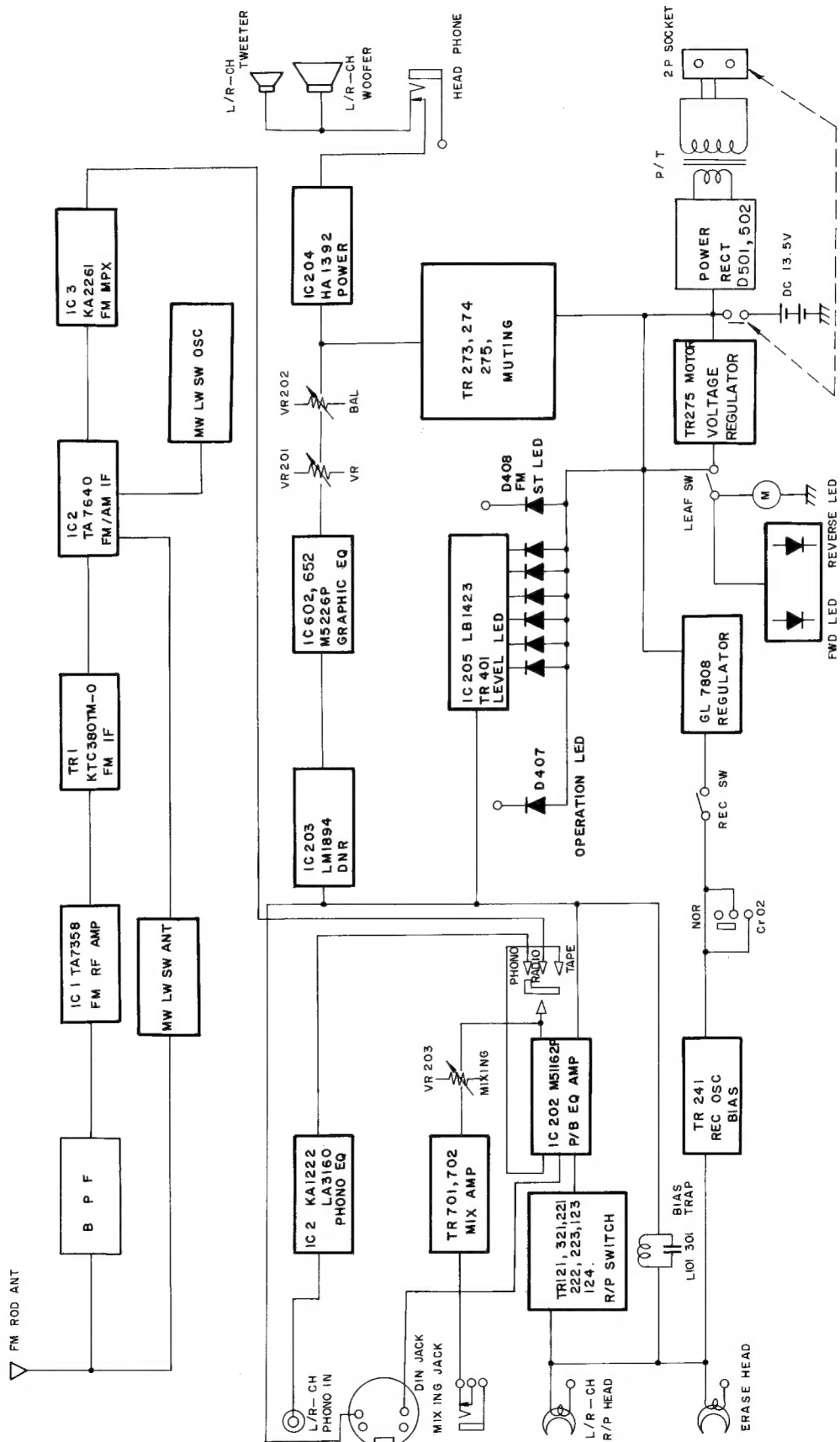


Figure 1.

Set the tuning capacitor to minimum frequency and string the cord following the numbers in figure 1.

BLOCK DIAGRAM



ALIGNMENT INSTRUCTIONS

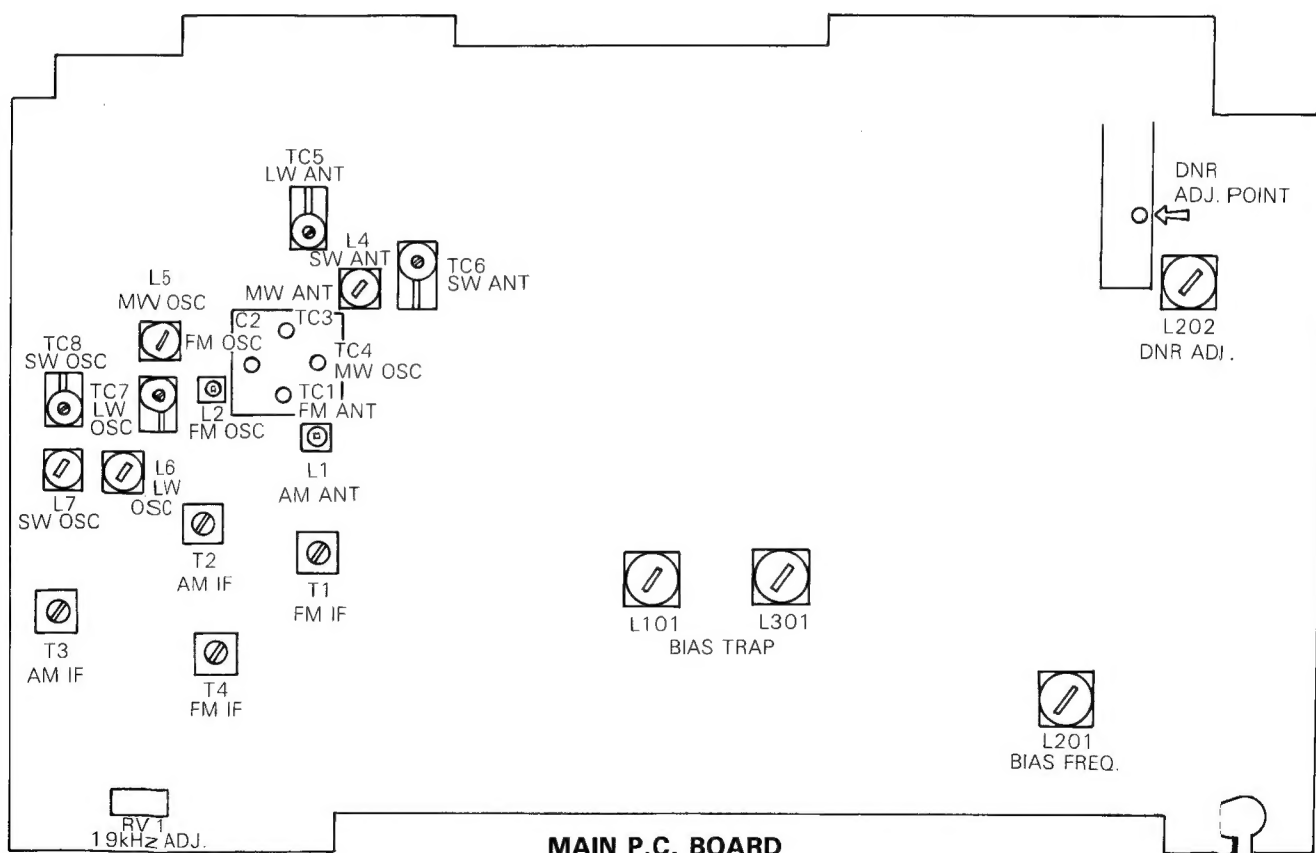
EQUIPMENT NEEDED

1. AM Signal Generator
2. FM Signal Generator
3. IF Sweep Generator with marker capabilities
4. FM Stereo Signal Generator
5. Oscilloscope
6. Output Meter (VTVM)
7. Frequency Counter
8. Nonmetallic Alignment Tools

IMPORTANT

1. Check power-source voltage.
2. Set the function switch to band being aligned.
3. Turn volume control to minimum unless otherwise noted.
4. Connect low side of signal source and output indicator to chassis ground unless otherwise specified.
5. Keep the signal input as low as possible to avoid AGC and AFC action.
6. Standard modulation is 400Hz at 30% for AM. (400Hz at 22.5kHz deviation for FM).

TEST AND ADJUSTMENT POINTS



MW Section

Circuit Alignment	Equipment Connection	Step	Generator Frequency	Dial Setting	Adjustment
IF	Connect input of IF Genescope to C25 (+), output to AM Ant Coil through the dummy. (Figure 2)	1	465kHz (400Hz Mod.)	Tuning gang fully closed	T2, T3 (AM IFT) Adjust for maximum output.
		2			Repeat until no further improvement can be made.
Band	AM Signal Generator with loop antenna Output Meter (VTVM) across 4 ohm load (Figure 3)	3	515 kHz (400 Hz Mod.)	Tuning gang fully closed	L5 (MW OSC. Coil). Adjust for maximum output.
		4	1650 kHz (400 Hz Mod.)	Tuning gang fully open	TC4 (MW OSC. Trimmer). Adjust for maximum output.
		5			Repeat steps 3 & 4
Tracking	AM Signal Generator with loop antenna Output Meter (VTVM) across 4 ohm load (Figure 3)	6	600 kHz (400 Hz Mod.)	Tune to signal	L3 (MW Ant. Coil). Adjust coil on ferrite core for maximum.
		7	1400 kHz (400 Hz Mod.)	Tune to signal	TC3 (MW Ant. Trimmer) Adjust for maximum output.
		8			Repeat steps 6 & 7 several times.

LW Section

Circuit Alignment	Equipment Connection	Step	Generator Frequency	Dial Setting	Adjustment
Band	AM Signal Generator with loop antenna Output Meter (VTVM) across 4 ohm load (Figure 3)	1	140 kHz (400 Hz Mod.)	Tuning gang fully closed	L6 (LW OSC. Coil). Adjust for coil on ferrite core.
		2	360 kHz (400 Hz Mod.)	Tuning gang fully open	TC7 (LW OSC. Trimmer). Adjust for maximum output.
		3			Repeat steps 1 & 2
Tracking	AM Signal Generator with loop antenna Output Meter (VTVM) across 4 ohm load (Figure 3)	4	160 kHz	Tune to signal	L3 (LW Ant. Coil). Adjust for maximum output.
		5	330 kHz	Tune to signal	TC5 (LW Ant. Trimmer). Adjust for maximum output.
		6			Repeat steps 4 & 5 several times.

SW Section

Circuit Alignment	Equipment Connection	Step	Generator Frequency	Dial Setting	Adjustment
Band	AM Signal Generator to antenna terminals through SW dummy matching network Output Meter (VTVM) across 4 ohm load (Figure 5)	1	5.7 MHz (400 Hz Mod.)	Tuning gang fully closed	L7 (SW OSC. Coil). Adjust for maximum output.
		2	18.5 MHz (400 Hz Mod.)	Tuning gang fully open	TC8 (SW OSC. Trimmer). Adjust for maximum output.
		3			Repeat steps 1 & 2
Tracking	AM Signal Generator to antenna terminals through SW dummy matching network Output Meter (VTVM) across 4 ohm load (Figure 5)	4	6.5 MHz	Turn to signal	L4 (SW Ant. Coil) Adjust for maximum output.
		5	16 MHz	Turn to signal	TC6 (SW Ant. Trimmer) Adjust for maximum output.
		6			Repeat steps 4 & 5 several times.

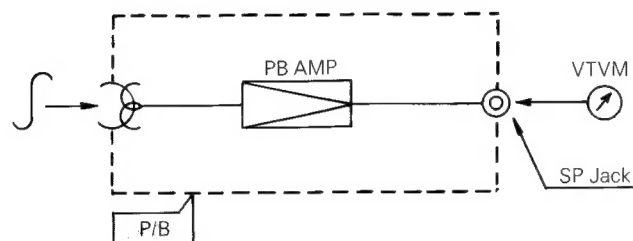
FM Section

Circuit Alignment	Equipment Connection	Step	Generator Frequency	Dial Setting	Adjustment
IF	Connect input of IF Genescope to C25 (+), output to the body of ICI through the dummy. (Figure 4)	1	10.7 MHz	Tuning gang fully closed	T1, T4 (FM IFT). Adjust for maximum symmetrical response (10.7 MHz at the center point)
		2			Repeat step 1
Band	FM Signal Generator to antenna terminals through 75 ohm antenna matching network, Output Meter (VTVM) across 4 ohm load (Figure 6)	3	87.35 MHz (400Hz Mod.)	Tuning gang fully closed	L2 (FM OSC. Coil). Adjust for maximum output
		4	108.25 MHz (400 Hz Mod.)	Tuning gang fully open	TC2 (FM OSC. Trimmer). Adjust for maximum output
		5			Repeat steps 3 & 4 several times.
Tracking	FM Signal Generator to antenna terminals through 75 ohm antenna matching network, Output Meter (VTVM) across 4 ohm load (Figure 6)	6	90 MHz (400 Hz Mod.)	Tune to signal	L1 (FM Ant. Coil) Adjust for maximum output.
		7	106 MHz (400 Hz Mod.)	Tune to signal	TC1 (FM Ant. Trimmer). Adjust for maximum output.
		8			Repeat steps 6 & 7 to obtain suitable sensitivity at 90 MHz and 106 MHz

FM MPX

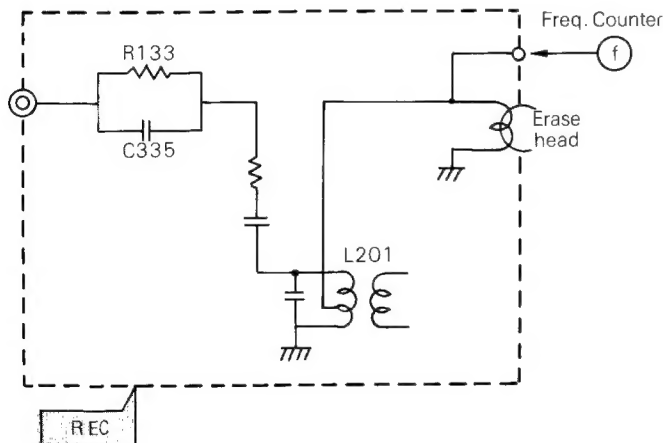
Circuit Alignment	Equipment Connection	Step	Generator Frequency	Dial Setting	Adjustment
19 kHz	FM Stereo Generator composite out connected to Ext. Mod of FM Signal Generator FM Signal Generator to antenna terminals matching 75 ohm antenna matching network Frequency Counter across TP2 (Pin No. 12 of IC3) (Figure 7)	1			First make sure FM section properly aligned.
		2	98 MHz (1 mV output)	98 MHz	Adjust RV1 for Frequency Counter indicates 19 kHz.

AZIMUTH ADJUSTMENT (Foward, Rewind)



Input	Adjust for	Adjustment
MTT-114 (10 kHz)	Maximum	Azimuth Adjusting screw (2 each)

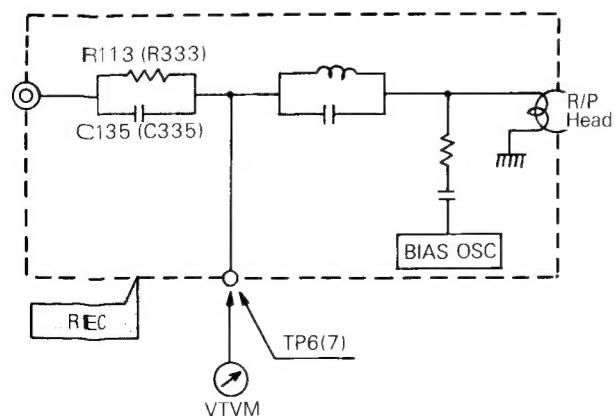
BIAS FREQUENCY ADJUSTMENT



Input	Adjust for	Adjustment
No Signal	61 kHz \pm 0.2 kHz	L201

NOTE: RIF SW "I" position

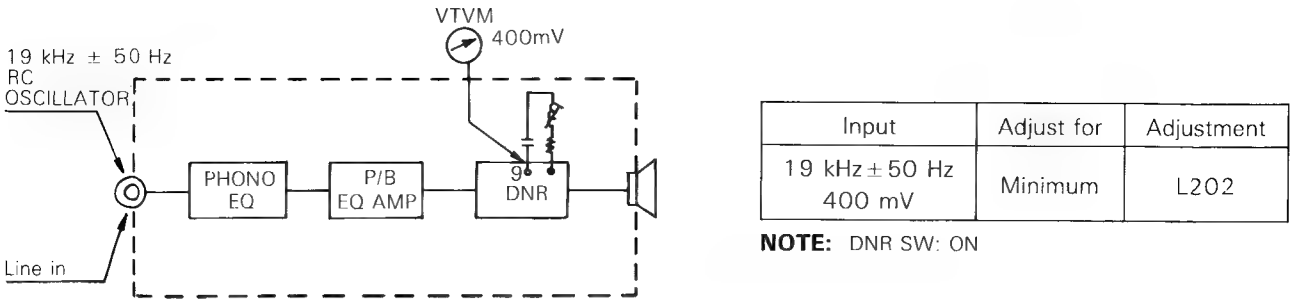
BIAS TRAP ADJUSTMENT



Input	Adjust for	Adjustment
No signal	Minimum	L : L101 R : L301

NOTE: RIF SW "I" position
Tape SW "Metal" position

DNR ADJUSTMENT



TEST EQUIPMENT CONNECTIONS

Figure 2. MW IF

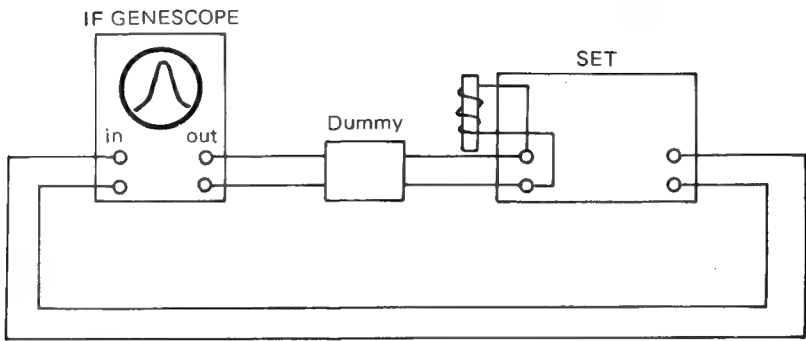


Figure 3. LW & MW Band/Tracking

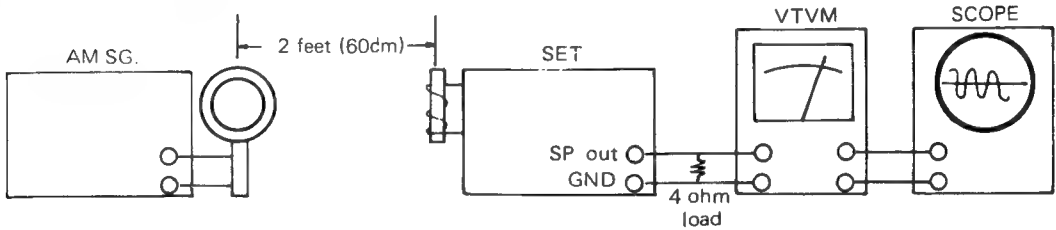


Figure 4. FM IF

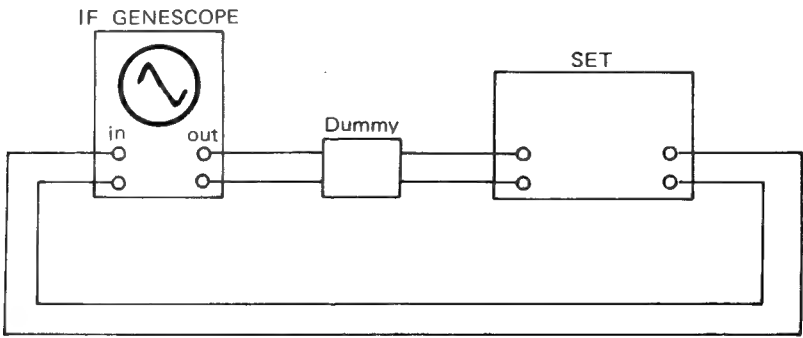


Figure 5. SW Band/Tracking

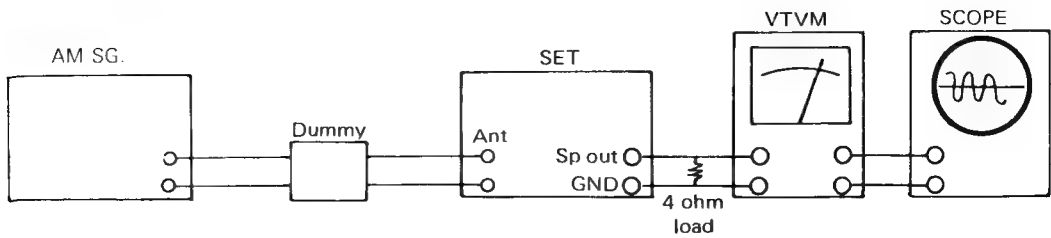


Figure 6. FM Band/Tracking

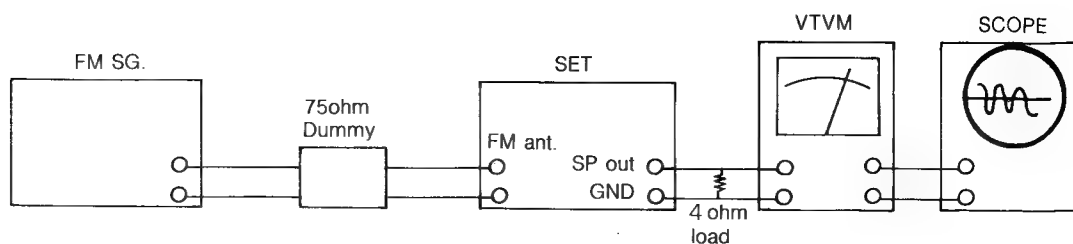
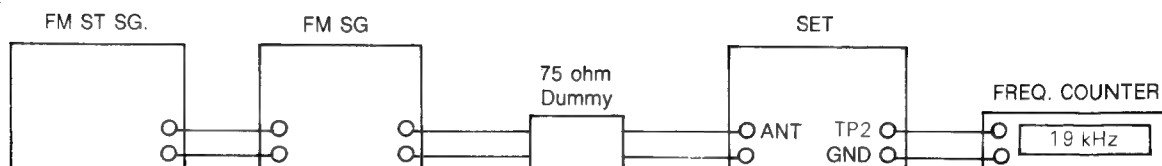


Figure 7. 19 kHz Pilot



STANDARD MAINTENANCE

Tape Head and Capstan Cleaning

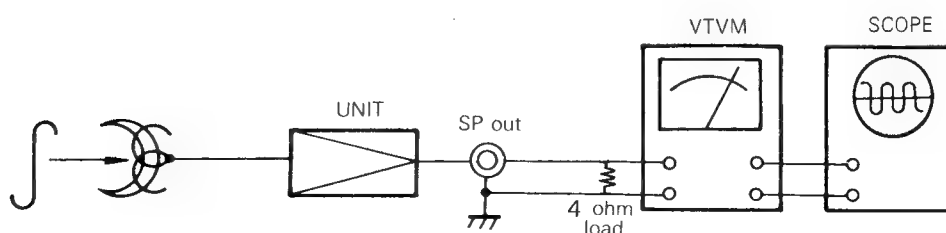
Whenever a unit is brought in for service or repair, clean the tape heads, capstan drive shaft and other tape handling surfaces to ensure proper tape handling and optimum frequency response. Use a cotton swab dipped in head cleaner or denatured alcohol to clean all tape handling surfaces. Wipe dry.

Tape Head Demagnetization

Do not use magnetized tools near the tape heads, since they can magnetize the heads. After long period of use, the heads will retain a small amount of residual magnetism. A magnetized head will result in loss of high frequency response and increased noise. Use a standard tape head demagnetizer and follow the instructions supplied with it to demagnetize the heads.

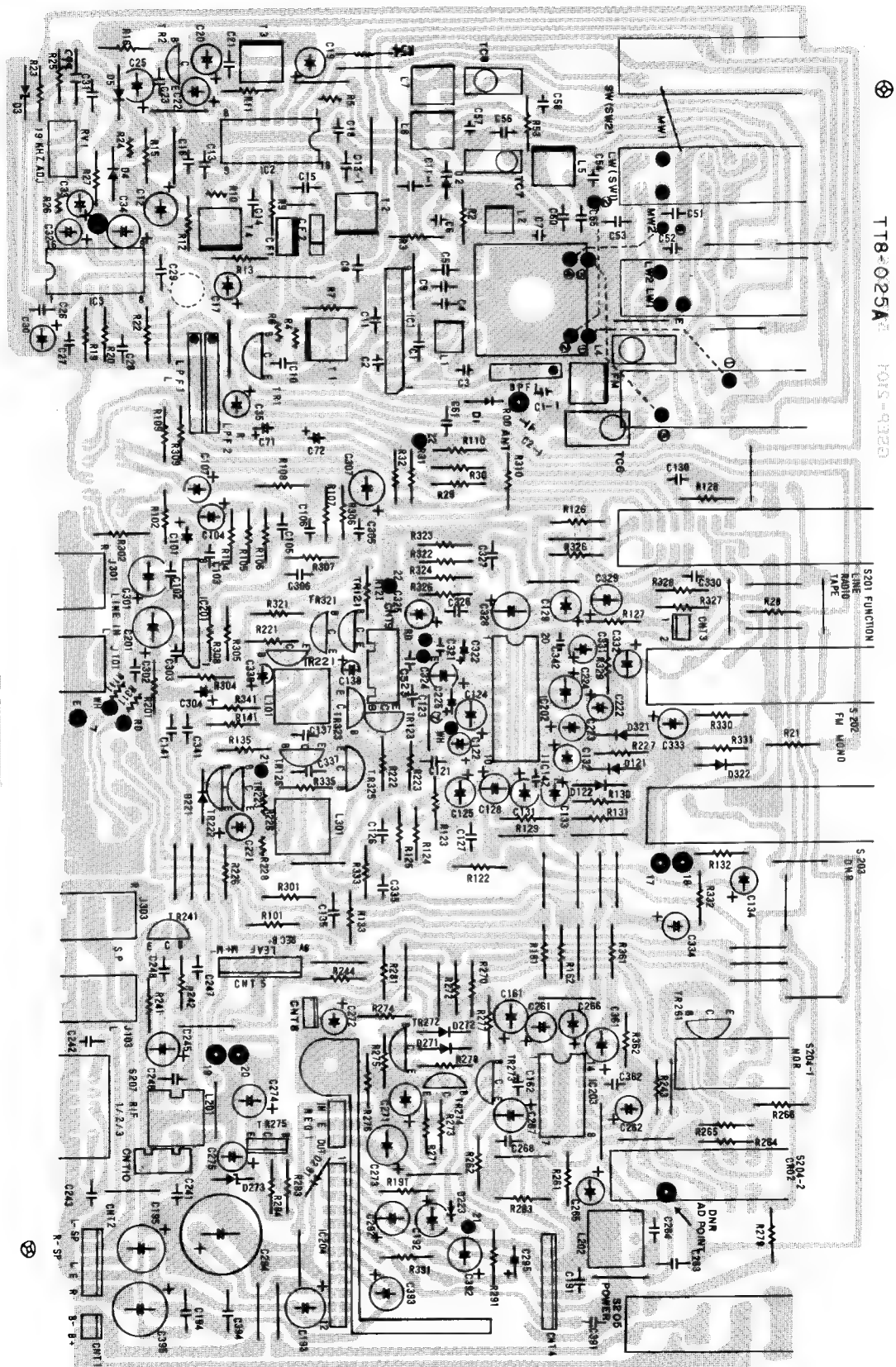
Azimuth Adjustment

1. Azimuth adjustment is normally required when the head is replaced, or for cases of cross-talk and poor high frequency response. A test tape is required for such adjustment.
2. Connect a scope or VTVM to the right channel EXT. SP jack. Insert a test tapes into the unit (use a test tape such as TEAC MTT-113, MTT-115). Adjust the azimuth adjustment screw for maximum output onto the right channel. Use glyptal or other non-hardening cement to lock the azimuth adjustment screw.

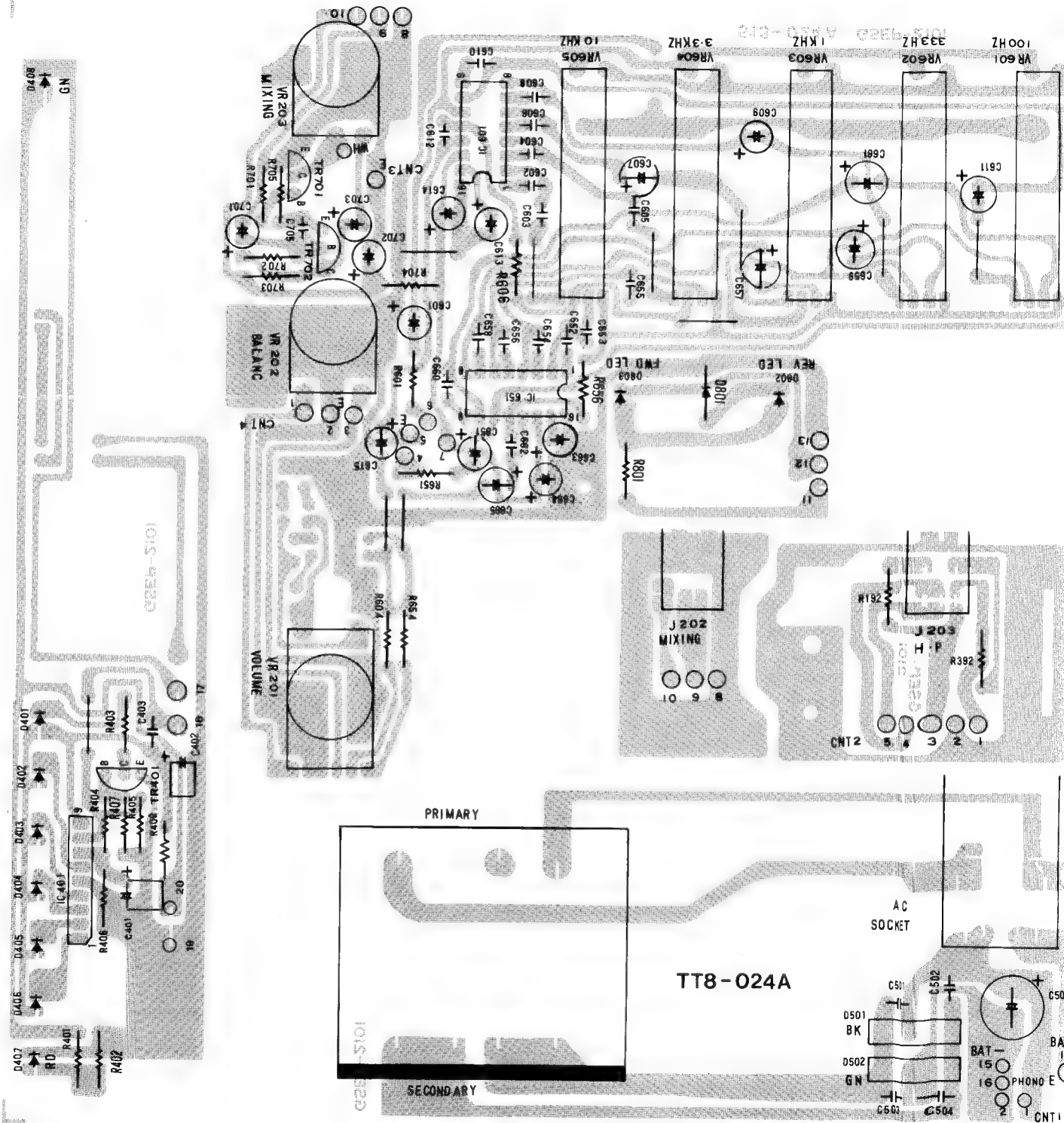


(Left channel is the same as right)

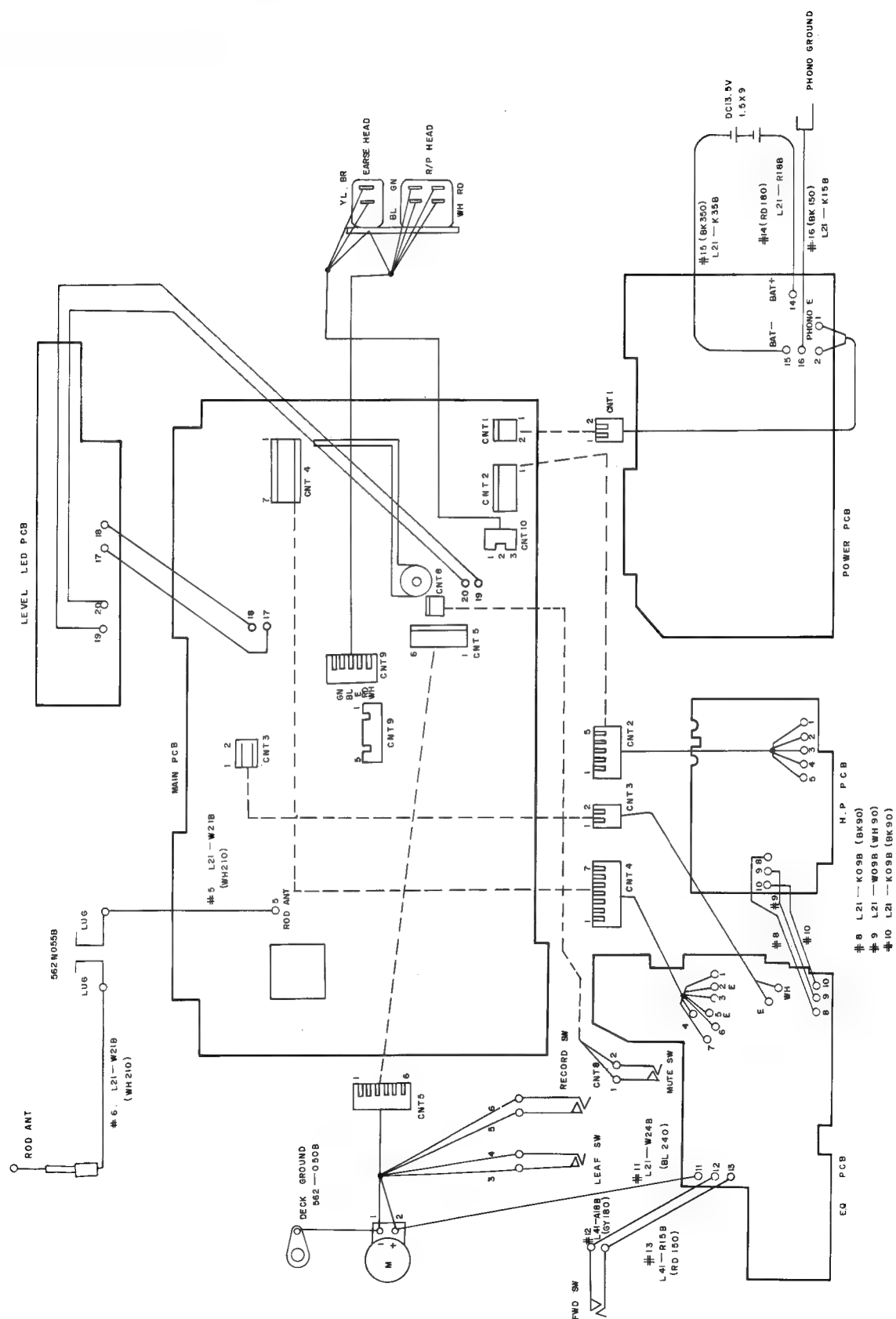
MAIN P.C. BOARD



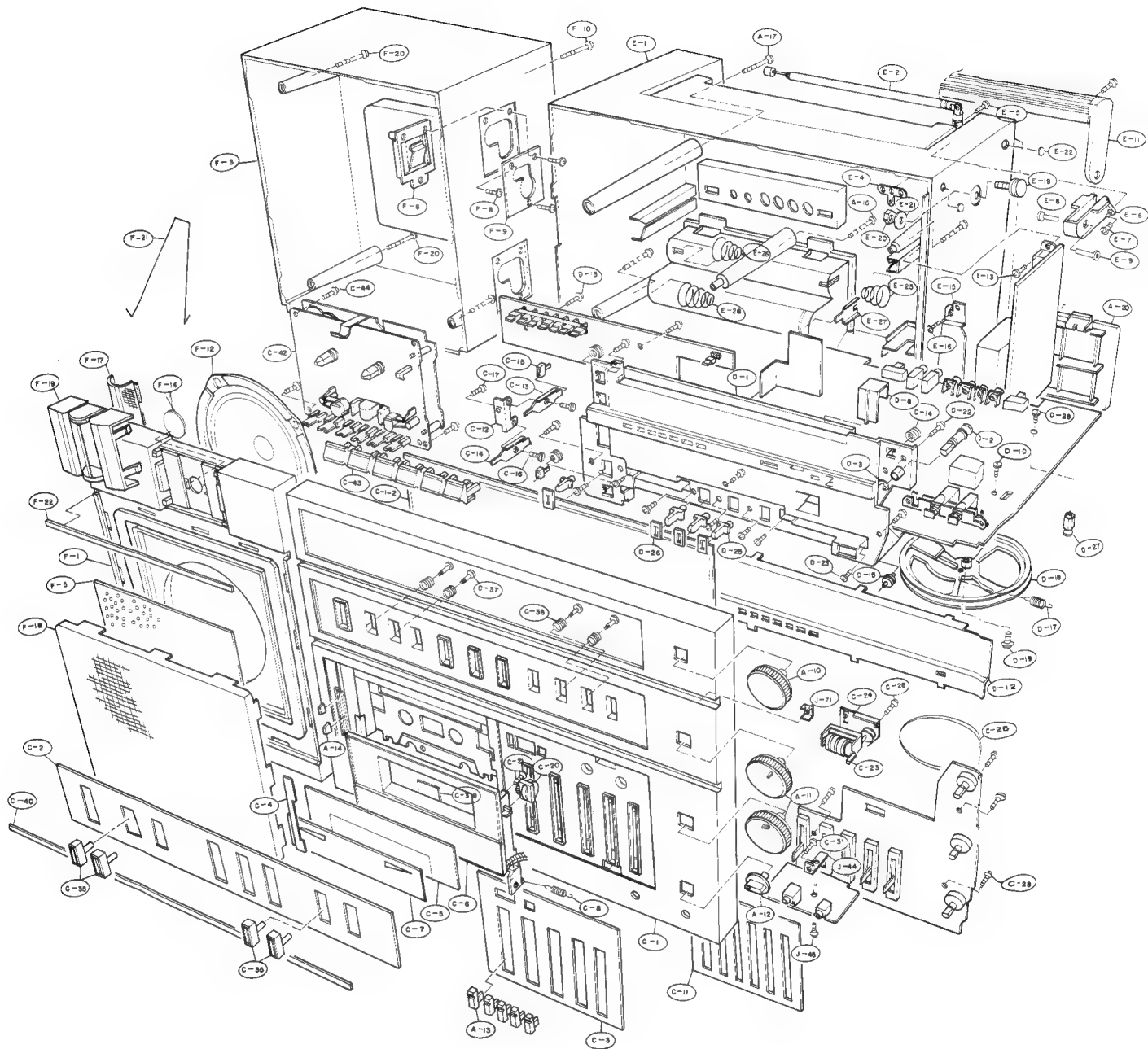
SUB P.C. BOARD



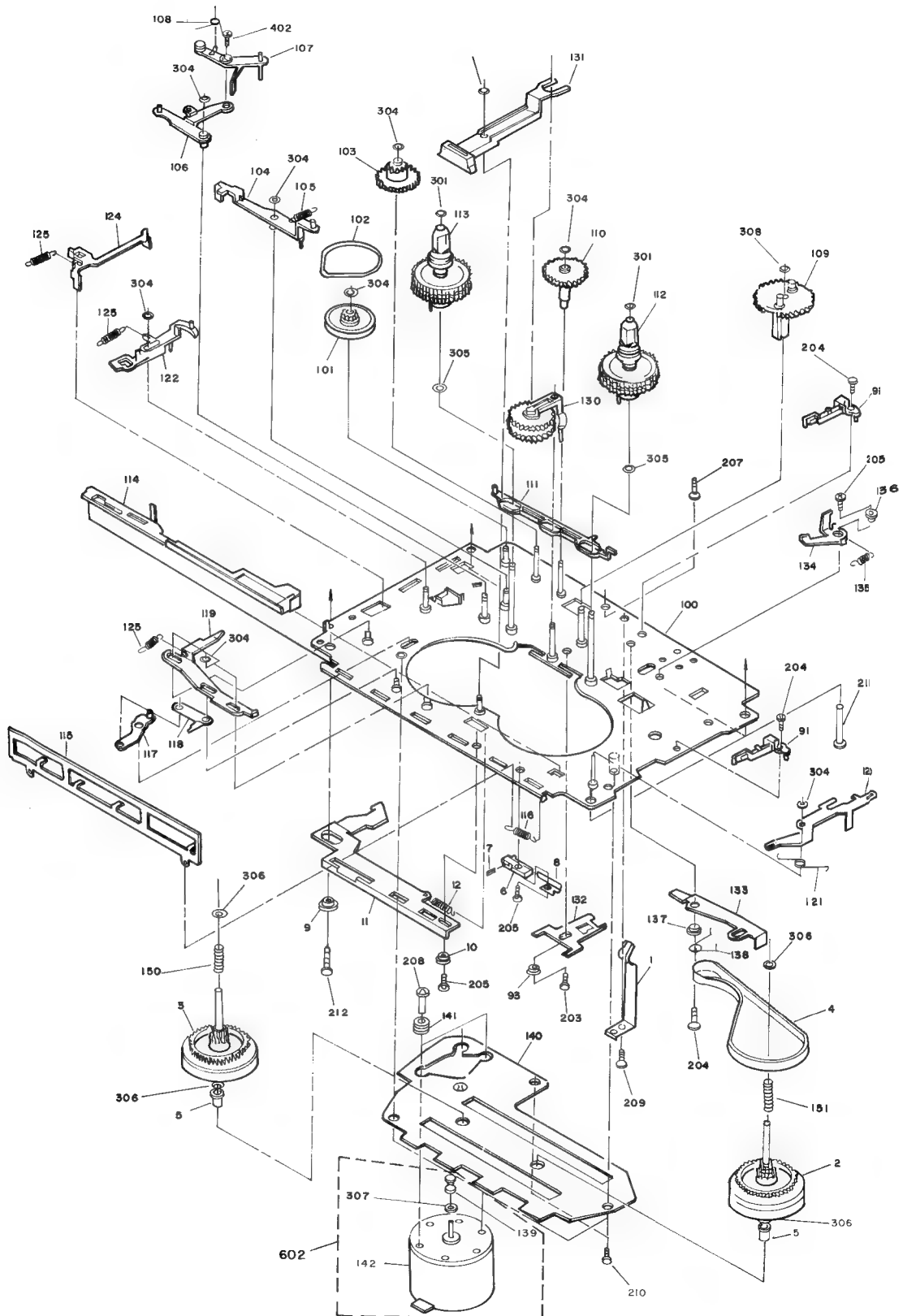
WIRING DIAGRAM



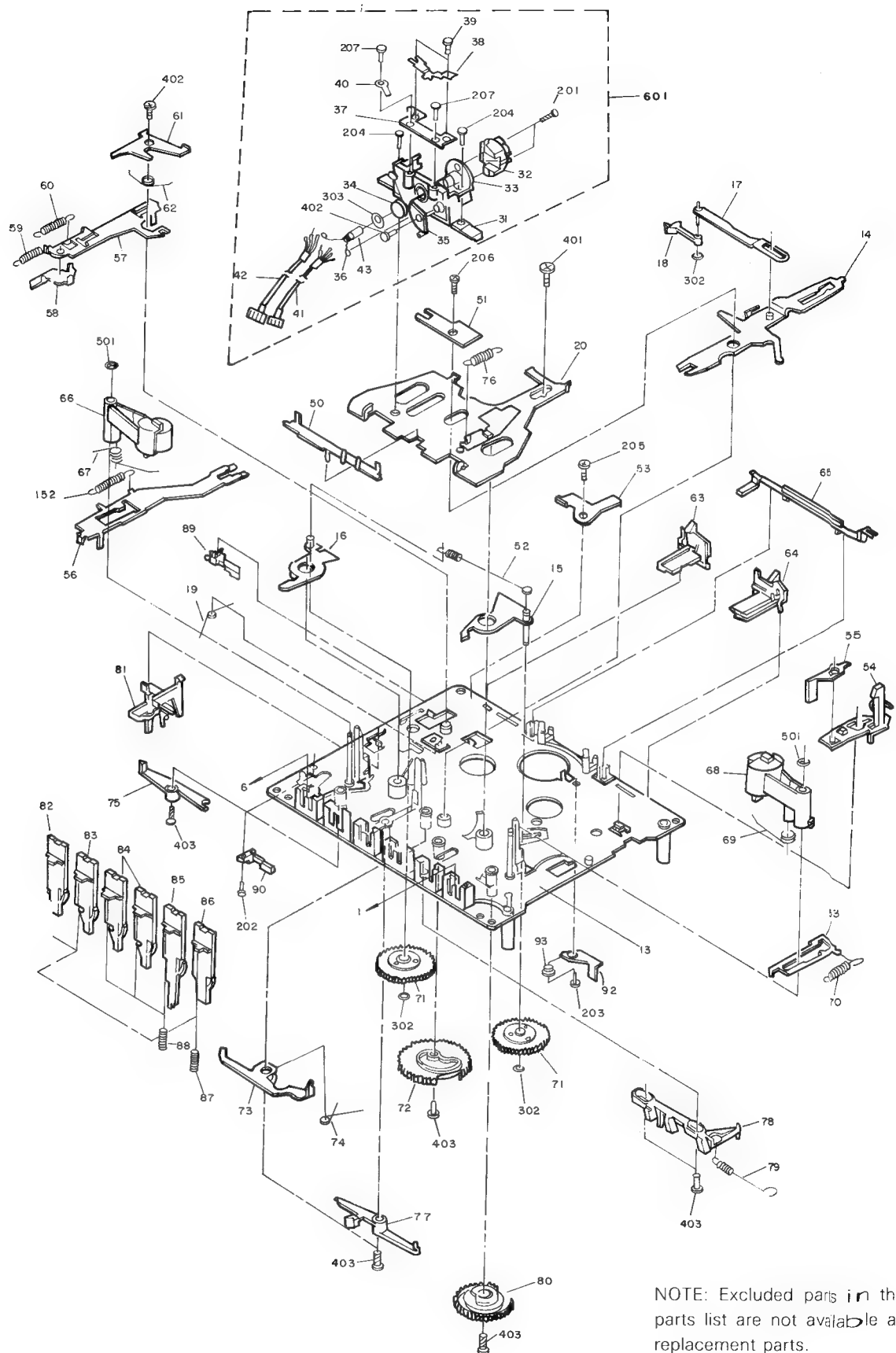
EXPLODED VIEW OF CABINET




EXPLODED VIEW OF DECK MECHANISM



NOTE: Excluded part in the parts list are not available as replacement parts.



ELECTRICAL PARTS LIST

CAUTION: A  in the schematic diagram or the parts list designates components which have special important safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on page 2 in this manual. Do not harm the safety of the receiver through improper servicing.

Ref. No.	Mfr's Part No.	Description	Ref. No.	Mfr's Part No.	Description
INTEGRATED CIRCUITS			D4	652-605B	Diode, Switch, IS2472
IC1	668-108D	IC, KIA7358P (FM FNT)	D5	652-605B	Diode, Switch, IS2472
IC2	668-192A	IC, KIA7640AP (AM/FM IF)	D51	651-030A	Diode, Band SW ISS135
IC3	668-162A	IC, LA3361 (MPX)	D121	652-605B	Diode, Switch, IS2472
IC201	668-110A	IC, KA1222 (EQ)	D122	652-605B	Diode, Switch, IS2472
IC202	668-660A	IC, M51162 (EQ+LINE)	D221	652-605B	Diode, Switch, IS2472
IC203	668-656A	IC, LM1894 (DNR)	D223	652-605B	Diode, Switch, IS2472
IC204	668-625A	IC, HA1392 (AUDIO)	D271	652-605B	Diode, Switch, IS2472
IC205	668-638A	IC, LB1423 5-DOT (RED)	D272	652-605B	Diode, Switch, IS2472
IC601	668-655A	IC, M5226P (GRAPHIC EQ)	D273	654-623G	Diode, Zener, UZ10B
IC651	668-655A	IC, M5226P (GRAPHIC EQ)	D291	652-605B	Diode, Switch, IS2472
REG1	668-084B	IC, GL7808 (VOLTAGE REGULATOR)	D321	652-605B	Diode, Switch IS2472
TRANSISTORS			D322	652-605B	Diode, Switch IS2472
TR1	665-820B	TR, KTC380TM-O	D401~	653-625A	LED, KLR208E RD
TR2	665-812B	TR, KTC1815-Y	407		(Level, Power)
TR121	665-830B	TR, KTC2120-Y	D408	653-625B	LED, KLG208E GN
TR123	665-814B	TR, KTC1959-Y			(FM Stereo)
TR124	665-814B	TR, KTC1959-Y	D501	652-021C	Diode, Rect M1-151
TR125	665-830B	TR, KTC2120-Y	D502	652-021D	Diode, Rect M1-151
TR191	665-814B	TR, KTC1959-Y	D801	652-605B	Diode, Switch IS2472
TR221	665-830B	TR, KTC2120-Y	D802	653-636A	LED, SLR54URC3-G RD
TR222	665-813C	TR, KTA1015-GR	D803	653-636A	LED, SLR54URC3-G RD
TR223	665-813C	TR, KAT1015-GR	COILS & TRANSFORMERS		
TR241	665-814B	TR, KTC1959-Y	L1	635-020E	Coil, FM OSC
TR261	665-812B	TR, KTC1815-Y	L2	635-020B	Coil, FM OSC
TR272	665-812B	TR, KTC1815-Y	L3	632-203E	Coil, AM ANT
TR273	665-813C	TR, KTA1015-GR	L4	634-020F	Coil, SW ANT 5.7~18.5 MHz
TR274	665-812B	TR, KTC1815-Y	L5	634-037K	Coil, MW OSC
TR275	661N027A	TR, GS-2013-H	L6	634-037L	Coil, LW OSC
TR321	665-830B	TR, KTC2120-Y	L7	634-020E	Coil, SW OSC 5.7~18.5 MHz
TR323	665-814B	TR, KTC1959-Y	L101	638-601C	Coil, Trap (Rec Trap)
TR324	665-814B	TR, KTC1959-Y	L201	634-610A	Coil, Tape OSC (Rec OSC)
TR325	665-830B	TR, KTC2120-Y	L202	638-104A	Coil, DNR 4.7 mH (DNR 19 kHz)
TR391	665-814B	TR, KTC1959-Y	L301	638-601C	Coil, Trap (Rec Trap)
TR401	665-814B	TR, KTC1959-Y	T1	644-018F	Trans, FM IF
TR701	665-814B	TR, KTC1959-Y	T2	644-039M	Trans, MW IF
TR702	665-704B	TR, KTC9014A-C	T3	644-039N	Trans, MW IF
TR801	665-815A	TR, KTA562TM-O	T4	647-011F	Discriminator
DIODES			SWITCHES & JACKS		
D1	652-605B	Diode, Switch IS2472	S1-1,2,3,4	554-613R	SW, Uni-Push SUF44-S H=1.5
D2	654-418A	Diode, AFC IS2236	S201	556-611T	SW, SLRD43-S L=15 (Function)
D3	654-608A	Diode, Zener ZPD5.6	S202	556-611S	SW SLR022-N L=15 (FM ST/Mono)
			S203	556-611S	SW, SLR022-N L=15 (DNR On/Off)

Ref. No.	Mfr's Part No.	Description	Ref. No.	Mfr's Part No.	Description
S204- 1,2	554-613S	SW, Push SUF24-S H= 12.5 (Normal/crO ₂)	CF2	616-003D	Filter, Ceramic SFU 465B
S205	556-611R	SW, SLR042-N L= 15 (Power)	IF 1, 2	616-009A	Filter, Ceramic B3BN4103-32N
S207	552-614A	SW, Slide KSA-2317 (RIF)	BPF1	616-011A	Filter, Band Pass PFWB2
J101	576-001A	Jack Block 1P S-155B (Line/Phono In L-CH.)	VR201	611-649D	VR, K162H00-50KA x 2 L= 20
J103	571-001C	Jack, Earphone (EXT SP. L)	VR202	611-648Q	VR, K161B0G-50KW L= 20
J202	571-101B	Jack D= 3.5 HSJ0800-01-020 (Mixing)	VR203	611-648R	VR, K161B00-20KA L= 20
J203	571-102A	Jack D= 3.5 HSJ0944-01-110 (Headphone)	VR601~ 605	612-610E	VR, Slide S3028G 4-100KB x 2
J301	576-001A	Jack Block 1P S-155B (Line/Phono In R-CH)	RV1	613-021D	VR, Semi-Fixed TT24R100 5KB (Pilot 19 kHz)
J302	576-001A	Jack Block 1P S-155B (Line/Phono In R-CH)	VC1-4	622N048E	Varicon Poly P2Z-22BPTL131 10H
J303	571-001C	Jack, Earphone (EXT SP R.)	TC1-4		
MISCELLANEOUS PARTS			TC5	623N023B	Trimmer T1-1-8
			TC6	623N023B	Trimmer T1-1-8
			TC7	623N023H	Trimmer T1-1-8
			TC8	623N023B	Trimmer T1-1-8
				641-709C	Trans Power, 220V 12V 1.5A
				577-005C	Socket AC-IN KC-2103
CF1	616-010A	Filter, Ceramic SFE 10.7MS3G			

MECHANICAL PARTS LIST

CABINET

Ref. No.	Mfr's Part No.	Description	Ref. No.	Mfr's Part No.	Description
A-10	271-172K	Knob, Turing (BK)	C-40	251-252A	Plate, Decoration-A (On The Case Front)
A-11	272-257B	Knob, Volume	C-42	419-005A	Deck Mechanism, SR-403-01
A-12	273-003H	Knob, Control (BK)	C-43	275-259B	Button Deck (BK)
A-13	273-689E	Knob, Slide (BK)	C-44	353-025G	Screw, Special (For Deck)
A-14	273-258B	Knob, Reverse (BK)	D-1	313-260A	Chassis
A-16	353-041B	Screw, Special	D-2	421-981A	Shaft, Tuning
A-17	353-025N	Screw, Special (For Front + Rear)	D-3	WE02200Q	Washer, E-Ring
A-20	221-625B	Cover, Battery (BK)	D-8	361-262A	Pointer
A-22	353-025C	Screw, Special (For Voltage Cover)	D-10	353-025F	Screw, Special (For Chassis + Main PWB)
A-24	472-604R	Felt	D-12	252-020E	Plate Scale
A-25	681-035A	Power Cord	D-13	353-025F	Screw, Special (For Chassis + PWB LED)
C-1	217-985B	Case Ass'y, Front	D-14	434N003F	Roller
C-1-1	217-980A	Case, Front	D-15	434-018A	Roller
C-1-2	236-255A	Window	D-17	442-004X	Spring
C-2	221-987B	Cover, Decoration (Band)	D-18	432N038A	Pulley Dial
C-3	221-986A	Cover, Decoration (EQ)	D-19	MPC1536J	Screw, MPC + 2.6 x 8 (For Pulley)
C-4	221-988A	Cover, Decoration (Reverse)	D-22	353-025G	Screw, Special (For Front + Chassis)
C-5	221-985A	Cover, Cassette	D-23	MPC1836J	Screw, MPC + 3 x 8 (For Chassis + Main PWB)
C-6	217-984A	Case, Cassette	D-25	273-698C	Knob, Toggle (BK)
C-7	251-253A	Plate, CST Decoration	D-26	221-920B	Cover, Toggle Knob-B
C-8	442-934B	Spring Eject	D-27	423-293A	Shaft, Roller (On The PWB)
C-10	231-660A	Sheet Indicator	D-28	MPC1836J	Screw, MPC + 3 x 8 (Shaft Roller & PWB Mount)
C-11	221-982A	Cover, Slide Knob	E-1	217-981B	Case, Rear
C-12	321-852A	Bracket, Guide	E-2	532-006C	Antenna, Rod
C-13	321-853A	Bracket, Reverse-B	E-4	562N055B	Lug
C-14	321-850A	Bracket, Reverse-A	E-5	MPC1839L	Screw, MPC + 3 x 10 (For Rod ANT)
C-15	333-261A	Lever, Reverse	E-6	321-745B	Bracket, Handle (BK)
C-16	353-150A	Screw Reverse (For Reverse Bracket + Guide Bracket)	E-7	353-025G	Screw, Special
C-17	353-025G	Screw, Special (For Front + Guide Bracket)	E-8	423-297A	Shaft, Handle
C-20	444-003A	Damper Ay	E-9	423-286A	Shaft Handle Holder
C-20-1	419-049A	Housing Damper	E-11	261-086E	Handle Ay
C-20-2	435-020A	Gear Damper	E-11-1	261N089II	Handle (BK)
C-21	353-052C	Screw, Special (For Damper Ay)	E-11-2	MAC1839L	Screw, MAC + 3 x 10 (For Handle)
C-23	517-114A	Tape Counter	E-11-3	324-639A	Holder, Handle
C-24	321-854A	Bracket counter	E-13	353-025G	Screw, Special (For 2P Socket)
C-25	451-146C	Belt Counter	E-15	321-851A	Bracket, Trans
C-26	353-025G	Screw, Special (For Bracket, Counter)	E-16	353-025G	Screw, Special (For Bracket Trans)
C-28	353-025G	Screw, Special (For PWB, EQ)			
C-30	321-943A	Bracket Jack			
C-31	353-025G	Screw, Special (For Bracket + Front)			
C-35	273-040C	Knob, Push (BK)			
C-36	442-634G	Spring, Knob			
C-37	324-426A	Holder, Push Knob			
C-39	256-621G	Plate Reflection			

Ref. No.	Mfr's Part No.	Description	Ref. No.	Mfr's Part No.	Description
E-18	562N056A	Lug, GND	F-14	541-186A	Piezo
E-19	423-307A	Shaft Attachment	F-15	472-604J	Felt
E-20	NHA2600J	Nut, NH1-5FF	F-17	224-065A	Griele, Tweeter (BK)
E-21	WPL2600H	Washer WPL-5	F-18	224-066A	Grille, Woofer
E-22	447-059A	Cushion, S/P	F-19	246-256A	Decoration Tweeter
E-23	353-025L	Screw, Special	F-20	353-025J	Screw, Special (For Front + Rear SP)
E-25	442-716B	Spring, Battery (C)	F-21	324-476A	Holder, Speaker
E-26	442-714A	Spring Battery-A	F-22	251-252B	Plate Decoration B (S/P Front)
E-27	563N126D	Terminal, Battery	I	511-025C	PWB Ay, Main
E-28	442-714B	Spring, Battery (A)	I-136	255-614B	Plate Heatsink (For IC)
F-1	217-982A	Case, Speaker Front (R)	I-137	353-025E	Screw, Special (For Power IC, Reg. TR, Heatsink)
F-2	217-982C	Case, Speaker Front L)	J	511-024A	PWB Ay, Sub
F-3	217-983A	Case, Speaker Rear (R)	J-19	324-993A	Holder, LED-A (For Level LED)
F-4	217-983B	Case, Speaker Rear (L)	J-20	324-994A	Holder, LED-B (For Stereo LED)
F-5	246-246A	Decoration, Speaker	J-71	561-628A	Terminal, Lug (For Main PWB ANT)
F-6	321-990A	Bracket, Conduct (L)	J-72	561-628A	Terminal Lug (For Rod ANT)
F-7	321-991A	Bracket, Conduct (R)			
F-8	TCQ1839L	Screw, TCQ × 3 × 10			
F-9	321-837A	Bracket Locking-LH			
F-10	321-845A	Bracket Locking-RH			
F-11	564-004E	Cord, Speaker			
F-12	541-101N	Speaker 120K21-045F66			

DECK MECHANISM

Ref. No.	Mfr's Part No.	Description	Ref. No.	Mfr's Part No.	Description
1	99P-0223	Cassette Spring	69	99P-0239	Tortion Spring
2	99P-0224	Flywheel Ay-A	70	99P-0240	Extension Spring
3	99P-0225	Flywheel Ay-B	72	99P-0241	Assist Gear
4	99P-0226	Belt	76	99P-0242	Extesion Spring
6	99P-0227	Pause Holder	80	99P-0243	Pause Cam Gear
7	99P-0228	Pin	82	99P-0244	Rec Button
8	99P-0229	Pause Spring	83	99P-0245	Play Button
31	99P-0201	Head Stand Ay(B)	84	99P-0246	F/R Button
32	99P-0202	Rpe Head	85	99P-0247	Pause Button
33	99P-0203	Head Holder Ay	86	99P-0248	S/E Button
34	99P-0204	H Gear A	87	99P-0249	Compression Spring
35	99P-0205	Head Gear	88	99P-0250	Compression Spring
36	99P-0206	Torsion Spring	89	99P-0251	Leaf SW
37	99P-0207	Azimuth Plate	91	99P-0252	Leaf SW
38	99P-0208	Azimuth Spring	139	99P-0221	Motor Pulley
39	99P-0209	Stopper A	142	99P-0220	Motor
40	99P-0210	Lag Plate	152	99P-0253	Extension Spring
41	99P-0211	Shield Wire	201	99P-0214	Screw M1.4 - 6
42	99P-0212	Shield Wire	204	99P-0215	Screw M2 - 5
43	99P-0213	Tube	207	99P-0216	Screw M2 - 8
52	99P-0230	Extesion Spring	301	99P-0254	Washer 1.5 - 4 - 0.2
54	99P-0231	Eject Lever	303	99P-0217	Washer 3.5 - 5 - 0.25
63	99P-0233	Interlock Arm A	307	99P-0222	Washer 1.9 - 4 - 0.2
64	99P-0234	Interlock Arm B	402	99P-0218	Bush
65	99P-0235	Link	403	99P-0255	Bush
66	99P-0236	Pinch Arm Ay-L	601	99P-0200	Head Complet Ay
67	99P-0237	Torsion Spring	602	99P-0219	Motor Ay
68	99P-0238	Pinch Arm Ay-R			

TRANSISTOR LEAD IDENTIFICATION AND IC INTERNAL DIAGRAM

TRANSISTOR BASING

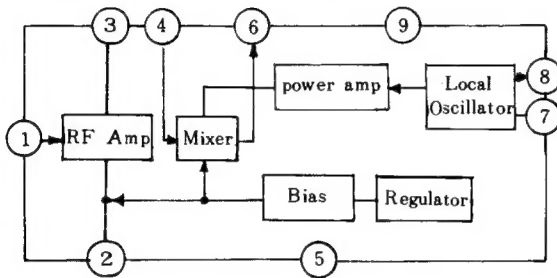


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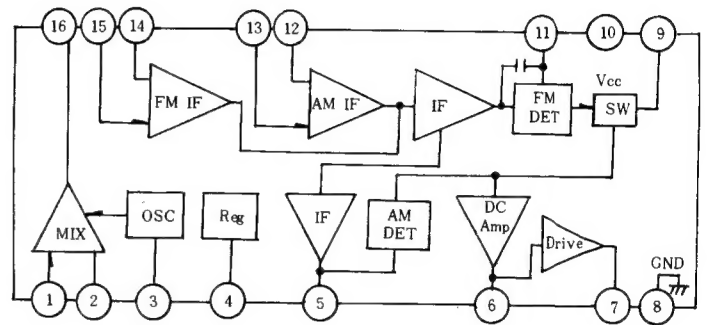


GS2013-H

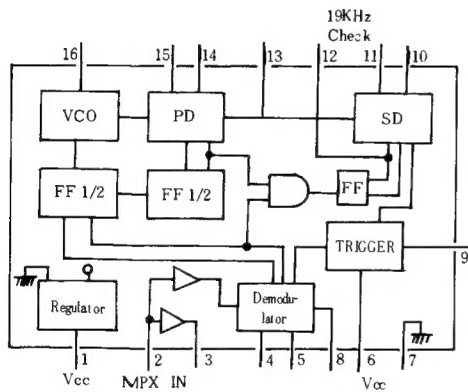
IC INTERNAL DIAGRAM



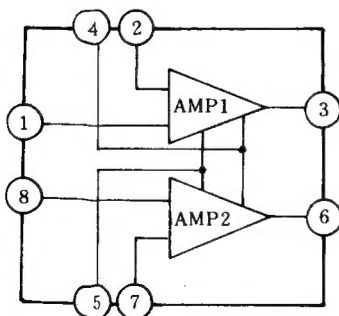
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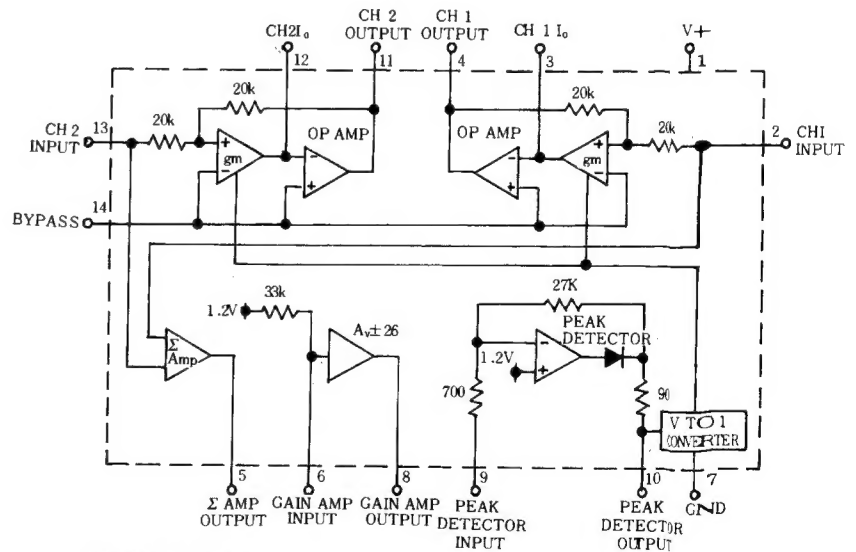
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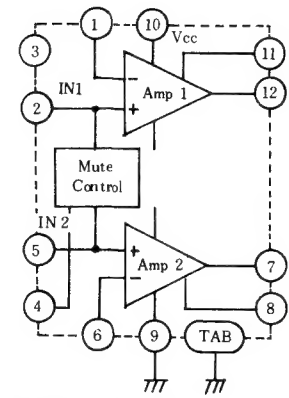
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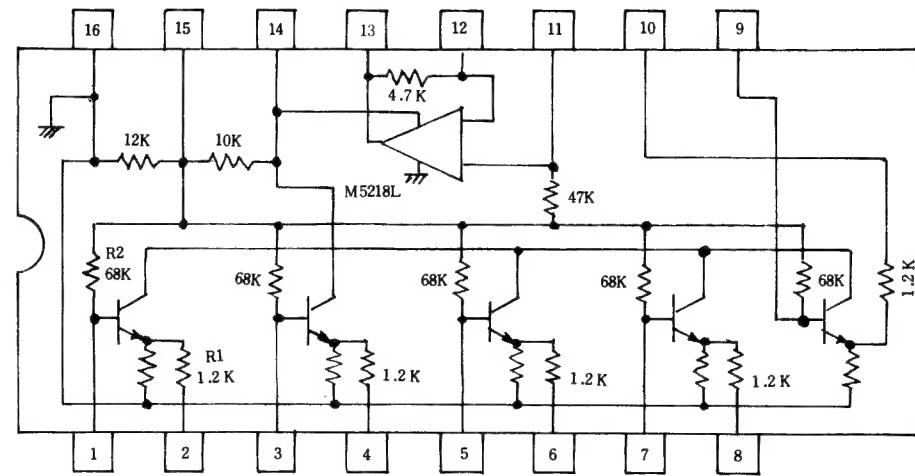
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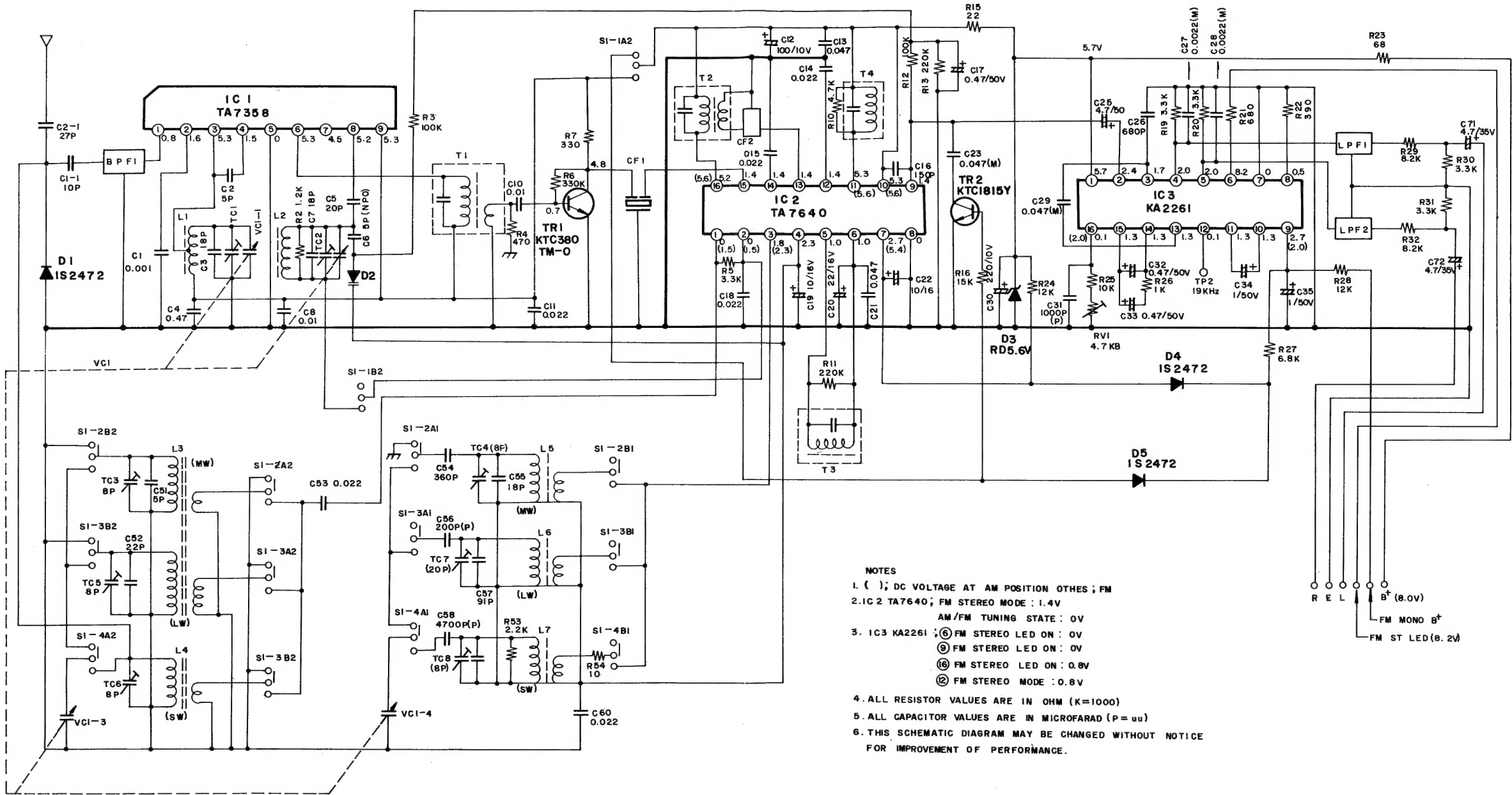


IC601/651 M5226P

NOTES

SCHEMATIC DIAGRAM

RF UNIT



SYMBOL	NAME	POSITION
SI-1(A1-1B2)	FM	ON
SI-2(A1-B2)	MW	OFF
SI-3(A1-B2)	LW	OFF
SI-4(A1-B2)	SW	OFF

MAIN UNIT

